Amendments to the Claims

This listing of claims will replace all prior versions, and listings of claims in the application.

1-11. (Cancelled)

12. (Currently Amended) A transceiver, comprising:

a substrate;

a plurality of ports including serial ports and parallel ports, [[the]] said plurality of ports being configured and arranged such that any one of [[the]] said serial and parallel ports can be connected to another serial or parallel port, each port including programmable pads, said plurality of ports being arranged on said substrate in a rotational symmetric layout,

wherein a first programmable pad is part of a first parallel port and a second programmable pad is part of a first serial port,

wherein at least one of a group consisting of said first programmable pad and said second programmable pad is configurable to operate according to a plurality of electrical specifications and a plurality of data protocols;

a bus coupled to said plurality of ports on said substrate; and

a pad control system constructed and arranged to configure said at least one of said first programmable pad and said second programmable pad to operate in accordance with a specified data protocol from among said plurality of data protocols and a specified electrical specification from among said plurality of electrical specifications.

13. (Previously Presented) The transceiver of claim 12, wherein said pad control system comprises:

a timing controller configured to modulate a delay between an input and an output of said at least one of said group consisting of said first programmable pad and said second programmable pad.

14. (Previously Presented) The transceiver of claim 13, wherein said pad control system comprises:

a timing register configured to send instructions to adjust said delay.

15. (Previously Presented) The transceiver of claim 12, wherein said pad control system comprises:

an input controller to configure said at least one of said group consisting of said first programmable pad and said second programmable pad to receive at least one of a group consisting of a data signal and a control signal.

16. (Previously Presented) The transceiver of claim 12, wherein said pad control system comprises:

an output controller to configure said at least one of said group consisting of said first programmable pad and said second programmable pad to send at least one of a group consisting of a data signal and a control signal.

17. (Previously Presented) The transceiver of claim 12, wherein said pad control system comprises:

a testing register configured to send a test message to measure leakage current from said at least one of said group consisting of said first programmable pad and said second programmable pad.

18. (Currently Amended) A method for programming a plurality of ports including serial ports and parallel ports, [[the]] said plurality of ports being configured and arranged such that any one of [[the]] said serial and parallel ports can be connected to another serial or parallel port, each port including a plurality of programmable pads, said plurality of pads being arranged on a substrate in a rotational symmetric layout, wherein a first programmable pad among said plurality of programmable pads is part of a first parallel port and a second programmable pad among said plurality of programmable pads is part of a first serial port, comprising:

(A) accessing a first set of instructions that specify a specified data protocol from among a plurality of data protocols;

(B) accessing a second set of instructions that specify a specified electrical specification from among a plurality of electrical specifications;

(C) sending a first control signal to at least one of a group consisting of said first programmable pad and said second programmable pad that carries said first set and second set of instructions;

(D) executing said first set and second set of instructions to configure said at least one of said group consisting of said first programmable pad and said second programmable pad;

(E) sending a second control signal to instruct said at least one of said group consisting of said first programmable pad and said second programmable pad to function as an output or an input based on said first set and second set of instructions.

19. (Previously Presented) The method according to claim 18, further comprising:

(F) sending an input control message to configure said at least one of said group consisting of said first programmable pad and said second programmable pad to receive at least one of a group consisting of a data and a control message.

20. (Previously Presented) The method according to claim 18, further comprising:

(F) sending an output control message to configure said at least one of said group consisting of said first programmable pad and said second programmable pad to send at least one of a group consisting of a data and a control message.

21. (Previously Presented) The method according to claim 18, further comprising:

(F) sending a test message to measure leakage current at said at least one of said group consisting of said first programmable pad and said second programmable pad.

22. (Currently Amended) The method according to claim 18, further comprising:

(F) sending a delay control message to adjust said delay between an input and an output at said at least one of said group consisting of said first programmable pad and said second programmable pad.

23. (Previously Presented) The method according to claim 22, further comprising:

(G) delaying said data at said at least one of said group consisting of said first programmable pad and said second programmable pad for a fixed time interval; and

(H) sending said data to a destination external to said at least one of said group consisting of said first programmable pad and said second programmable pad upon expiration of said fixed time interval, wherein said delay control message determines said fixed time interval.

24. (Previously Presented) The method according to claim 22, further comprising:

(G) delaying said data in a buffer at said at least one of said group consisting of said first programmable pad and said second programmable pad for a fixed time interval; and

(H) sending said data to a second buffer or a destination external to said at least one of said group consisting of said first programmable pad and said second

programmable pad upon expiration of said fixed time interval, wherein said delay control message determines whether said data is sent to said second buffer or said destination.

25. (Currently Amended) A transceiver, comprising:

a substrate;

a plurality of ports including serial ports and parallel ports, [[the]] said plurality of ports being configured and arranged such that any one of [[the]] said serial and parallel ports can be connected to another serial or parallel port, each port including programmable pads, said plurality of ports being arranged on said substrate to provide a rotational symmetric layout

wherein at least one of a group consisting of said first programmable pad and said second programmable pad is configurable to operate with a plurality of electrical specifications and a plurality of data protocols;

means for coupling said plurality of ports on said substrate;

means for accessing instructions that specify at least one of a specified data protocol from among a plurality of data protocols and a specified electrical specification from among a plurality of electrical specifications; and

means for executing said instructions to configure at least one of said group consisting of said first programmable pad and said second programmable pad to comply with said specified data protocol and said specified electrical specification.

26. (Previously Presented) The transceiver of claim 25, further comprising:

means for instructing said at least one of said group consisting of said first programmable pad and said second programmable pad to receive at least one of data and a control message.

27. (Previously Presented) The transceiver of claim 25, further comprising:

means for instructing said at least one of said group consisting of said first programmable pad and said second programmable pad to send at least one of a group consisting of data and a control message.

28. (Previously Presented) The transceiver of claim 25, further comprising:

means for measuring leakage current at said at least one of said group consisting of said first programmable pad and said second programmable pad.

29. (Currently Amended) The transceiver of claim 25, further comprising:

means for adjusting said delay between an input and an output at said at least one of said group consisting of said first programmable pad and said second programmable pad.

30. (Previously Presented) The transceiver of claim 29, further comprising:

means for delaying said data at said at least one of said group consisting of said first programmable pad and said second programmable pad for a fixed time interval; and

means for sending said data to a destination external to said group consisting of at least one of said first programmable pad and said second programmable pad upon

expiration of said fixed time interval, wherein said timing means determines said fixed time interval.

31. (Currently Amended) The transceiver of claim 12, wherein at least one of said first parallel port and said second parallel port is configured to operate according to a 10 Gigabit Media Independent Interface (XGMII) protocol.

32. (Previously Presented) The transceiver of claim 12, wherein said first parallel port is configured to operate at 1/10 of a data rate of said first serial port.

33. (Previously Presented) The transceiver of claim 12, wherein said first serial port is configured to operate according to a 10 Gigabit Attachment Unit Interface (XAUI) protocol.

34. (Previously Presented) The transceiver of claim 12, wherein said first serial port is configured to operate at a plurality of data rates.

35. (Previously Presented) The transceiver of claim 34, wherein said plurality of data rates includes at least one of: 3.125 GHz, 2.5 GHz, and 1.25 GHz.

36. (Previously Presented) The transceiver of claim 12, wherein said first serial port is configured to operate according to a 10 Gigabit Ethernet Extended Sublayer (XGXS) protocol.

37. (Previously Presented) The transceiver of claim 12, wherein said first serial port is configured to perform a parallel to serial conversion when said first serial port receives parallel data.

38. (Previously Presented) The transceiver of claim 12, wherein said first parallel port is configured to perform a serial to parallel conversion when said first parallel port receives serial data.

39. (Previously Presented) The transceiver of claim 12, wherein said pad control system comprises:

a register configured to send instructions to configure said at least one of said group consisting of said first programmable pad and said second programmable pad to comply with said specified data protocol and said specified electrical specification.

40. (Previously Presented) The transceiver of claim 12, wherein at least one of a group consisting of an operating voltage of said first programmable pad and an operating voltage of said second programmable pad is defined according to said specified electrical specification.

41. (Previously Presented) The transceiver of claim 12, wherein said at least one of said group consisting of said first programmable pad and said second programmable pad is configured to either send or receive data after having been

configured to comply with said specified data protocol and said specified electrical specification.

42. (Currently Amended) The transceiver of claim 25, wherein said instructions ~~includes~~ include instructions to change an operating voltage of said at least one of said group consisting of said first programmable pad and said second programmable pad.

43. (Previously Presented) The transceiver of claim 25, wherein said at least one of said group consisting of said first programmable pad and said second programmable pad is configured to function as an output or an input based on said instructions.

44. (Previously Presented) The transceiver of claim 25, wherein said at least one of said group consisting of said first programmable pad and said second programmable pad is configured to either send or receive data after having been configured to comply with said specified data protocol and said specified electrical specification.

45. (Previously Presented) The method of claim 18, wherein step (B) comprises:

(B)(i) accessing said electrical specification, said electrical specification including instructions to change at least one of a group consisting of an operating voltage

of said first programmable pad and an operating voltage of said second programmable pad.

46. (Previously Presented) The method of claim 18, wherein step (B) comprises:

(B)(i) sending said second control signal to instruct said at least one of said group consisting of said first programmable pad and said second programmable pad to function as said output or said input based on said protocol and electrical specification instructions, after executing said protocol and electrical specification instructions.

47. (Previously Presented) The method of claim 18, further comprising:

(F) receiving data by least one of said first parallel part and said first serial port.

48. (Previously Presented) The method of claim 47, further comprising:

(F) sending data from said first parallel part to at least one of a group consisting of a second parallel port and said first serial port in accordance with said data protocol and said electrical specification.

49. (Previously Presented) The method of claim 47, further comprising:

(G)(i) sending data from first serial port to at least one of a group consisting of a second serial port and said first parallel port in accordance with said data protocol and said electrical specification.

50. (Previously Presented) The transceiver of claim 12, wherein said bus is arranged to form a ring structure around a central logic core, said central logic core including said pad control system.

51. (Previously Presented) The transceiver of claim 12, wherein said rotational symmetric layout of said substrate allows said transceiver to maintain its functionality and configuration when rotated.

52. (Previously Presented) The transceiver of claim 51, wherein said rotational symmetric layout of said substrate allows said transceiver to maintain its functionality and configuration when rotated approximately 180 degrees.

53. (Previously Presented) The method according to claim 18, wherein said rotational symmetric layout of said substrate allows said transceiver to maintain its functionality and configuration when rotated.

54. (Previously Presented) The method according to claim 53, wherein said rotational symmetric layout of said substrate allows said transceiver to maintain its functionality and configuration when rotated approximately 180 degrees.

55. (Previously Presented) The transceiver of claim 25, wherein said means for coupling is arranged to form a ring structure around a central logic core, said central logic core including said means for executing said instructions.

56. (Previously Presented) The transceiver of claim 25, wherein said rotational symmetric layout of said substrate allows said transceiver to maintain its functionality and configuration when rotated.

57. (Currently Amended) The transceiver of claim 56, wherein said rotational symmetric layout of said substrate allows [[the]] <u>said</u> transceiver to maintain its functionality and configuration when rotated approximately 180 degrees.